



### AMENDMENTS TO THE CLAIMS

Please accept amended claims 15, 16, 48 and 54 as follows:

1-2. (Cancelled).

3. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein the pointer array includes at least one entry which is updated based on data read out from at least one data element in the vector data file.

4. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein the pointer array includes at least one entry which is updated based on data generated by incrementing data read from at least one entry of the pointer array.

5. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein the pointer array includes at least one entry which is updated based on data generated by performing an increment operation on data read from at least one entry of the pointer array.

6. (Original) The system as recited in claim 5, wherein the pointer array includes at least two entries which are updated as part of a same logical operation.

7. (Original) The system as recited in claim 5, wherein the increment operation includes at least one of a modulo operation and a stride operation.

8. (Previously Presented) The system as recited in claim 3, wherein each entry of the pointer array includes a starting address of at least one storage element in the vector data file.

9. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array includes an address representing the row and column of at least one element in the vector data file.

10. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

- a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

- a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

- the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array includes an address representing the row and column of a single element in the vector data file.

11. (Previously Presented) A system for processing operations that use data vectors each comprising a plurality of data elements comprising:

- a vector data file comprising a plurality of storage elements for storing data elements of the data vectors;

- a pointer array coupled by a bus to the vector data file, the pointer array including a plurality of entries wherein each entry identifies at least one storage element in the vector data file;

the at least one storage element for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

12-13. (Cancelled)

14. (Previously Presented) A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

updating at least one of the entries of the pointer array based on data read out from at least one data element in the vector data file.

15. (Currently Amended) The method as recited in claim 14, further comprising the step of:

~~A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:~~

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

updating at least one of the entries of the pointer array based on data read out from data generated by incrementing data read from at least one entry of the pointer array.

16. (Currently Amended) The method as recited in claim 14, further comprising the step of:

~~a method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:~~

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

updating at least one of the entries of the pointer array based on data generated by performing an increment operation on data read from at least one entry of the pointer array.

17. (Original) The method as recited in claim 16, wherein at least two entries of the pointer array are updated as part of a same logical operation.

18. (Original) The method as recited in claim 16, wherein the increment operation further includes at least one of a modulo operation and a stride operation on data read from at least one entry of the pointer array.

19. (Previously Presented) The method as recited in claim 14, wherein each entry of the pointer array stores a starting address of at least one storage element in the vector data file.

20. (Previously Presented) A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array stores an address representing the row and column of at least one element in the vector data file.

21. (Previously Presented) A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array stores an address representing the row and column of a single element in the vector data file.

22. (Previously Presented) A method for processing operations that use data vectors each comprising a plurality of data elements, the method comprising the steps of:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data



vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

23-24. (Cancelled).

25. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

updating at least one of the entries of the pointer array based on data read out from at least one data element in the vector data file.

26. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

updating at least one of the entries of the pointer array based on data read out from data generated by incrementing data read from at least one entry of the pointer array.

27. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage

element identified by the particular entry has an arbitrary starting address in the vector data file;  
and

updating at least one of the entries of the pointer array based on data generated by  
performing an increment operation on data read from at least one entry of the pointer array.

28. (Original) The program storage device as recited in claim 27, wherein at least two entries of  
the pointer array are updated as part of a same logical operation.

29. (Original) The program storage device as recited in claim 27, wherein the increment  
operation further includes at least one of a modulo operation and a stride operation on data read  
from at least one entry of the pointer array.

30. (Previously Presented) The program storage device as recited in claim 26, wherein each  
entry of the pointer array stores a starting address of at least one storage element in the vector  
data file.

31. (Previously Presented) A program storage device readable by machine, tangibly embodying a  
program of instructions executable by the machine to perform method steps for processing  
operations that use data vectors each comprising a plurality of data elements, the method steps  
comprising:

providing a vector data file comprising a plurality of storage elements for storing data  
elements of the data vectors, and

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file,

wherein the storage elements of the vector data file are logically organized in a matrix of rows and columns, and wherein each entry of the pointer array stores an address representing the row and column of at least one element in the vector data file.

32. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors,

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein the storage elements of the vector file data are logically organized in a matrix of rows and columns, and wherein each array of the pointer array stores an address representing the row and column of a single element in the vector data file.

33. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing operations that use data vectors each comprising a plurality of data elements, the method steps comprising:

providing a vector data file comprising a plurality of storage elements for storing data elements of the data vectors,

providing a pointer array having a plurality of entries, wherein each entry identifies at least one storage element in the vector data file for storing at least one data element of the data vectors, wherein for at least one particular entry in the pointer array, the at least one storage element identified by the particular entry has an arbitrary starting address in the vector data file; and

wherein, for any given entry in the pointer array, the at least one storage element identified by the any given entry is independent with respect to the at least one storage element identified by other entries of the pointer array.

34-47. (Cancelled)

48. (Currently Amended) A system for facilitating processing of vectors, comprising:

a vector memory area;

a controller for performing a specified operation on arbitrary ~~portions~~ elements of a ~~vector~~ stored in the vector memory area;

a pointer memory area containing address information identifying ~~the portions~~ each element stored in the vector memory area of the, wherein identified elements comprise a vector to access;

wherein the address information stored in the pointer memory area comprises a plurality of pointers pointing to ~~a portion~~ the elements of the vector memory area;

wherein the plurality of pointers are stored in the pointer memory area as a pointer array; and

wherein the pointer array is organized in a matrix of rows and columns, wherein the addresses held in each row or column of the pointer array corresponds to a different vector of elements from the vector memory area.

49. (Cancelled)

50. (Original) The system of claim 48, wherein the address information is loaded into the pointer memory area by a program instruction.

51. (Original) The system of claim 50, wherein the program instruction is a load instruction (VPTRLOAD).

52-53. (Cancelled).

54. (Currently Amended) A system for facilitating processing of vectors, comprising:  
a vector memory area;

a controller for performing a specified operation on arbitrary ~~portions~~ elements of a ~~vector~~ stored in the vector memory area;

a pointer memory area containing address information identifying the ~~portions~~ each element stored in the vector memory area of the, wherein identified elements comprise a vector to access;

wherein the address information stored in the pointer memory area comprises a plurality of pointers pointing to a ~~portion~~ the elements of the vector memory area;

wherein the plurality of pointers are stored in the pointer memory area as a pointer array; and

wherein each entry of the pointer array includes an address representing the row and column of at least one element in the vector memory area[[:]].

55. (Original) The system of claim 48, wherein the vector memory area is organized in a matrix of rows and columns.

56. (Original) The system of claim 48, wherein the vector memory area is organized in a linear array.

57-60. (Cancelled)